No. 805,715. PATENTED NOV. 28, 1905.

C. J. DALLEY.

TURNING LATHE CENTER.

APPLICATION FILED SEPT. 24, 1904.

2 SHEETS—SHEET 1.

Fig. 1.

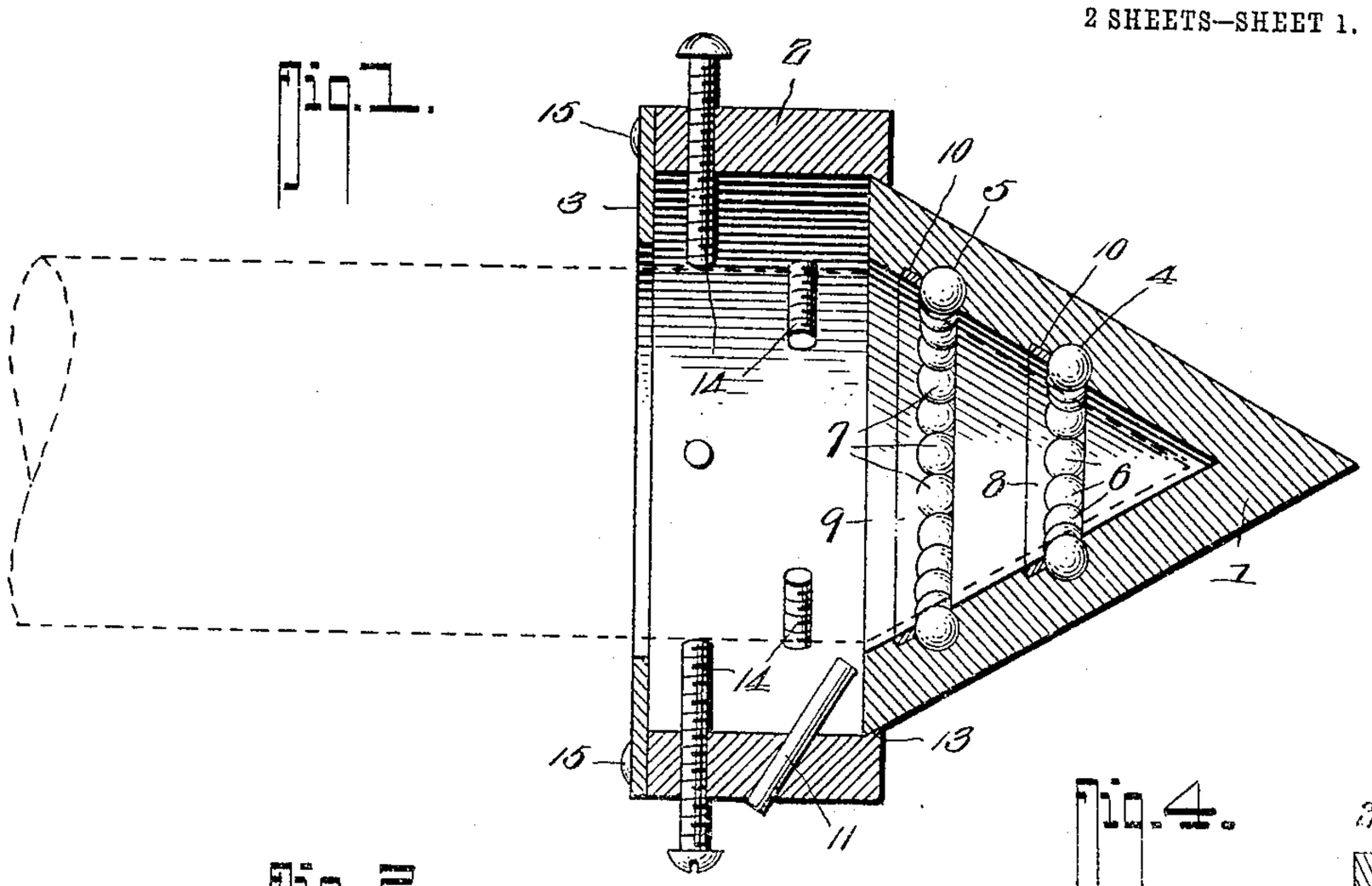


Fig. 2.

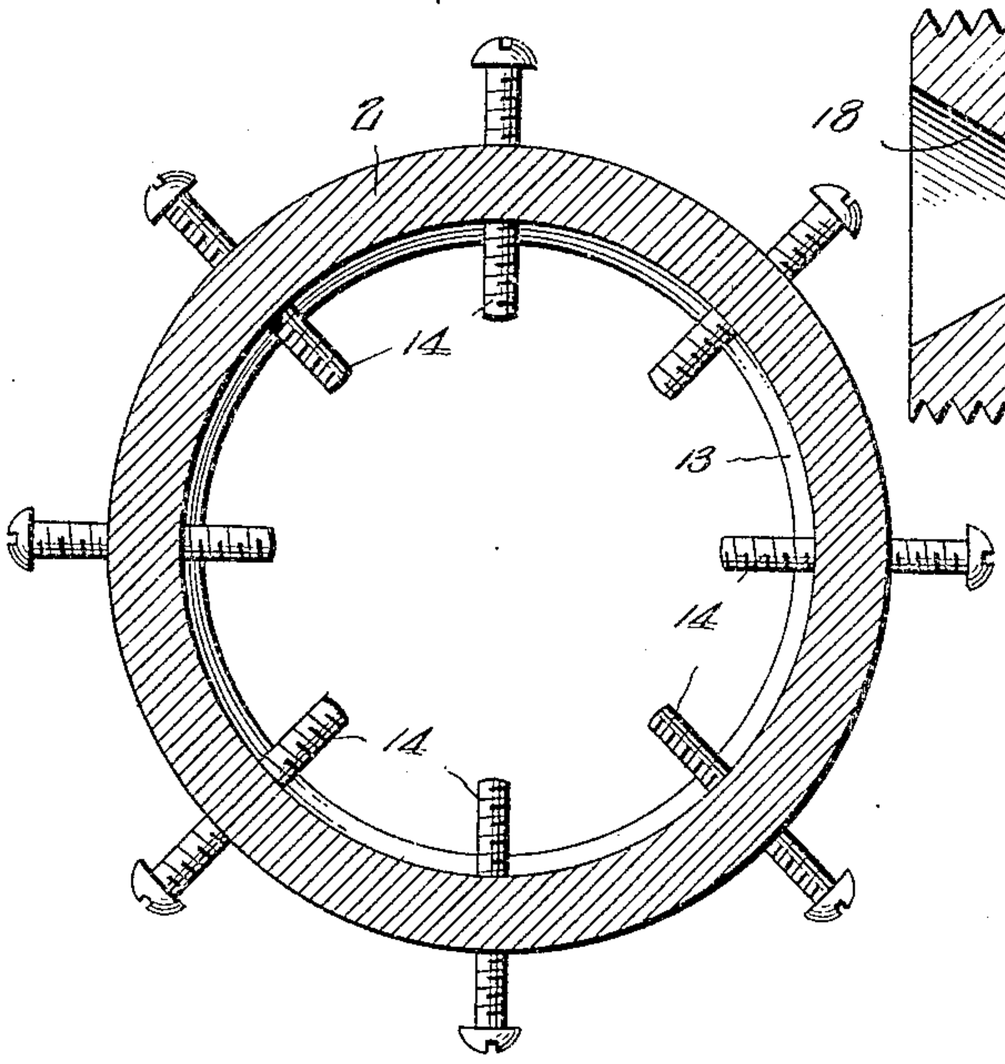


Fig. 4.

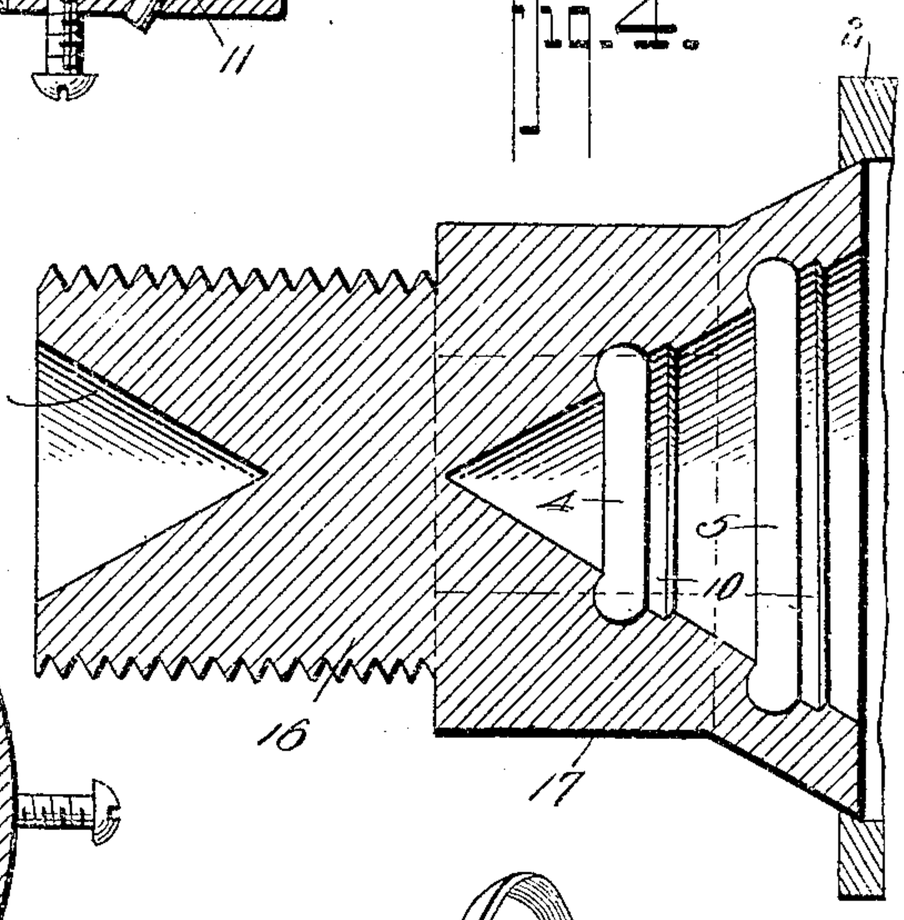
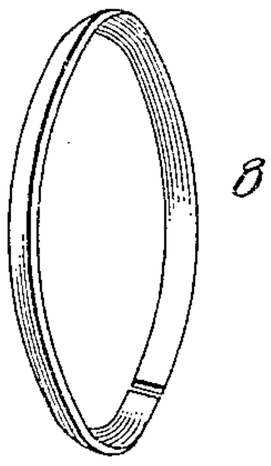


Fig. 3.



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2 SHEETS—SHEET 2.

Fig. 5.

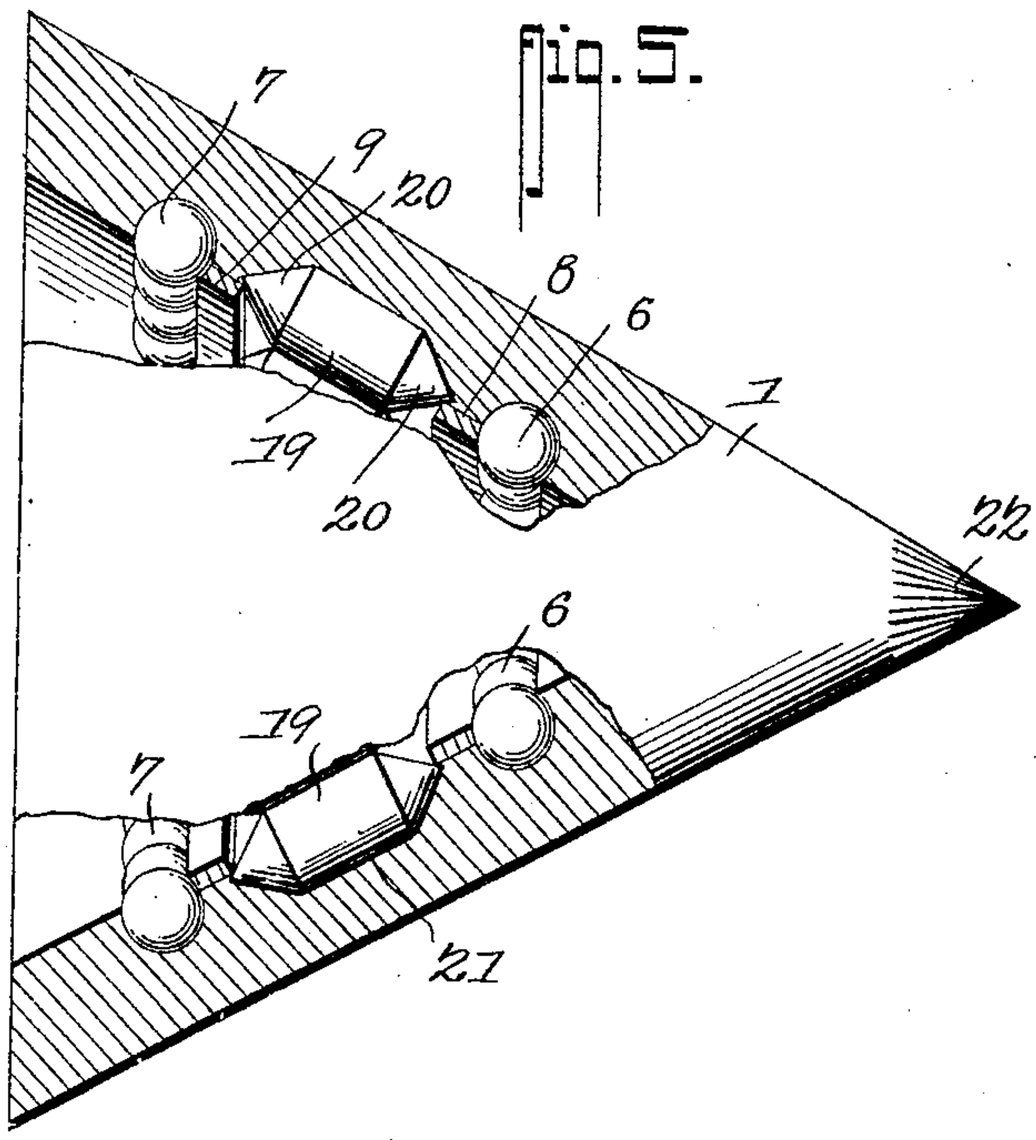
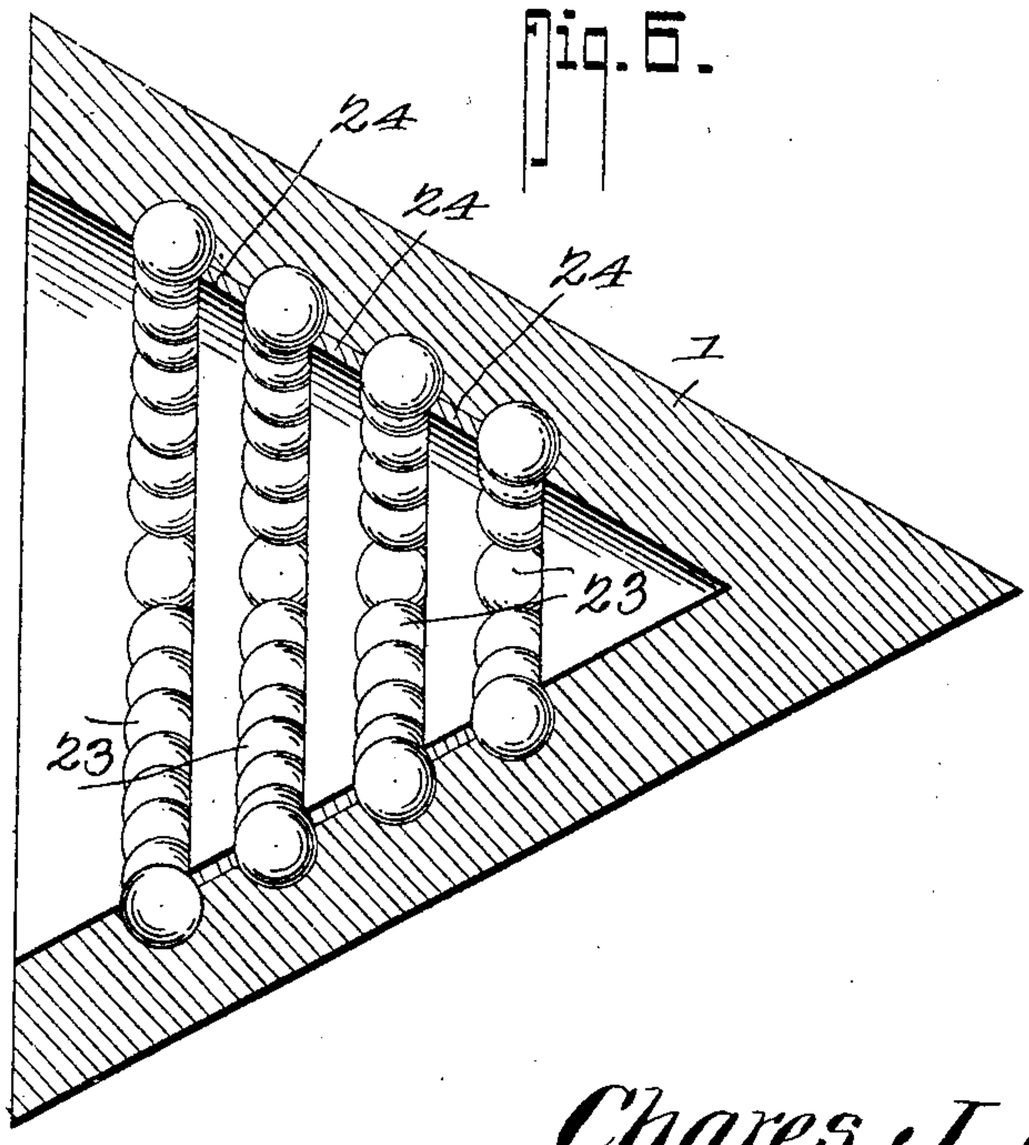


Fig. 6.



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UNITED STATES PATENT OFFICE.

CHARLES JOSIAH DALLEY, OF RARITAN, NEW JERSEY.

TURNING-LATHE CENTER.

No. 805,715. Specification of Letters Patent. Patented Nov. 28, 1905.

Application filed September 24, 1904. Serial No. 225,839.

To all whom it may concern:

Be it known that I, CHARLES JOSIAH DALLEY, a citizen of the United States, residing at Raritan, in the county of Somerset and State of New Jersey, have invented a new and useful Turning-Lathe Center, of which the following is a specification.

This invention relates generally to turning-lathes, and particularly to a novel form of cap for the dead-center.

The object of the invention is in a ready, simple, thoroughly-feasible, and practical manner to obviate wear of the dead-center and at the same time to secure positive centering of work, to render unnecessary any change in the structural arrangement of the dead-center to render it capable for use in connection with a lathe already constructed, to adapt the improvements for use in connection with a combined chuck-support and bitch-center, and generally to improve devices of this character.

With the above and other objects in view, as will appear as the nature of the invention is better understood, the same consists in the novel construction and combination of parts of a dead-center cap, as will be hereinafter fully described and claimed.

In the accompanying drawings, forming a part of this specification, and in which like characters of reference indicate corresponding parts, there are illustrated two forms of embodiment of the invention, each capable of carrying the same into practical operation, it being understood that the elements therein exhibited may be varied or changed as to shape, proportion, and exact manner of assemblage without departing from the spirit thereof.

In the drawings, Figure 1 is a view in vertical longitudinal section through a dead-center cap constructed in accordance with the present invention. Fig. 2 is a view in transverse section taken on the line 2 2, Fig. 1, and looking in the direction of the arrow thereon, a portion of the device being omitted. Fig. 3 is a detached detail view of a retaining band or ring used in connection with the device. Fig. 4 is a vertical longitudinal sectional view of a slightly-modified form of device. Figs. 5 and 6 are views in section of two modified forms of the invention.

Referring to the drawings and to Figs. 1, 2, and 3 thereof, there is illustrated one form of the invention adapted for use as a dead-center, and the same comprises a hollow cone-shaped cap 1 and a collar 2, the latter being provided with a dust-guard 3. The cap is to be made of hardened steel, and its bore is to be of a shape and size to receive the pointed end of an ordinary dead-center. (Indicated by dotted lines in Fig. 1.) The bore of the cap is in this instance shown as provided with two ball-races 4 and 5, in which are disposed series of ball-bearings 6 and 7, the latter being held in position through the medium of resilient retaining-bands 8 and 9, which constitute, in effect, a portion of the ball-race and are disposed within circumferential recesses 10, located adjacent to each of the ball-races. The ball-races are of such depth that the retaining-bands occupy a position disposed to one side of the axes of the balls, so that the latter are positively retained in position; but ready removal of the balls is afforded simply by removing the retaining-bands, as will be obvious. To supply the balls and their races with oil, an oil-tube 11 is provided which extends obliquely through the collar 2 and into the rear wall of the cap 1 and discharges near the rear ball-race. The oil supplied to this tube will be carried by the dead-center to the two ball-races and not only effect their proper lubrication, but also the lubrication of the dead-center, whereby wear of the latter is prevented. The forward portion of the collar is provided with an inturned flange 13, the inner face of which is positioned to conform to the cap and which serves positively to hold the latter against disconnection from the collar. The collar is made of any suitable material and carries a plurality of set-screws 14, which are designed to be screwed into engagement with the dead-center, as clearly shown in Fig. 1, and thus hold the cap properly positioned with relation thereto. The dust-cap 3, which may be made of any suitable material, is an annulus and has a center opening of a size snugly to fit the dead-center, so that entrance to the ball-bearing races of dust or the like is effectually precluded. The dust cap or disk is held combined with the collar through the medium of a plurality of screws 15. Instead of using a metallic dust-cap one made of leather or other soft and flexible material may be employed and still be within the scope of the invention.

In the form of embodiment of the invention shown in Fig. 4 the collar is omitted, for the reason that it is combined therewith in the same manner as that shown in Fig. 1, and the balls and retaining-bands are also omitted. This form of invention is adapted for use where a chuck is to be used in connection with the

cap or where it is to be employed as a bitch-center. To secure these results, the cap is provided with a threaded extension 16, adjacent to which is a polygonal portion 17 to be engaged by a wrench for holding the cap against rotation when the chuck is to be combined with the threaded extension 16. To adapt the latter for use as a bitch-center, its outer end is provided with a conical recess or socket 18.

In the form of embodiment of the invention shown in Fig. 5 there is provided, in addition to the series of ball-bearings 6 and 7, roller-bearings 19, which in this instance are shown as interposed between the two series of ball-bearings, it being understood that, if preferred, the location of the roller-bearings may be changed—that is to say, they may be disposed either in front of the series of bearings 6 or in rear of the series of bearings 7—and still be within the scope of the invention. These roller-bearings 19 have conical terminals 20, which engage with the under sides of the retaining-bands 8 and 9 and by which the said rollers are held in position against dropping out, but are permitted to have free rotation. In order to cause the aperative faces of the rollers to aline with the inner operative faces of the ball-bearings 6 and 7, the cap is provided with a circumferential channel 21, in which the said rollers are mounted. In order that the cap may engage the work with sufficient frictional resistance to cause it to rotate therewith, the point of the cap is milled or grooved, as at 22, for this purpose.

In the form of embodiment of the invention shown in Fig. 6 four series of ball-bearings 23 are employed, which are combined with the cap in the same manner as in the forms of embodiment of the invention shown in Figs. 1 and 5—that is to say, by the means of retaining-bands 24. By providing a plurality of series of ball-bearings the resistance to the turning of the cap is reduced to a minimum and wear of the ball-races is correspondingly diminished. It is to be understood that, if preferred, a greater number than four series of ball-bearings may be employed and still be within the scope of the invention, and as this may be readily understood detailed illustration thereof is deemed unnecessary.

While the milled or corrugated point is only shown in connection with the form of the invention shown in Fig. 5, it is to be understood that it may be employed with the forms shown in Figs. 1 and 6.

It will be seen from the foregoing description that as the collar is of greater diameter than the dead-center it may be readily applied to the latter without any change in the structural arrangement thereof simply by providing a dust-cap with an opening of a size to fit the dead-center, it being seen that the screws 14 will permit of an extended range of adjustment to fit the device to dead-centers of different diameters.

The devices as a whole are simple of construction, may be cheaply manufactured, and will in practice be found thoroughly efficient for the purpose designed.

Having thus described the invention, what is claimed is—

1. An article of the class described comprising a collar provided with securing means, and a hollow cap revolubly mounted within the collar with its point projecting therefrom.

2. An article of the class described comprising a collar carrying a plurality of radially-arranged securing-screws and provided with an inturned flange, and a hollow cone-shaped cap revolubly mounted within the collar and engaging the flange and having its point projecting from the collar.

3. An article of the class described comprising a collar provided with a retaining-flange, securing means carried by the collar, and a cone-shaped cap rotatably mounted within the collar and held in operative position by the flange and having its point projecting from the collar.

4. An article of the class described comprising a collar provided on one side with a retaining-flange, a dust-guard secured to the other side of the collar, adjusting-screws combined with the collar, a pointed cap having its base portion in engagement with the flange, and ball-bearings arranged upon the interior of the cap.

5. An article of the class described comprising a collar carrying securing-screws, and a hollow cone-shaped cap revolubly mounted within the collar and provided internally with ball-bearings and having its point corrugated or grooved and projecting from the collar.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

CHAS. JOSIAH DALLEY.

Witnesses:
GEORGE A. DILTS,
ISAAC D. DALLEY.